

Date: Tuesday, 9/12/2006 1:13:09 PM  
 User: Kim Johnston

## Process Sheet

43

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : 350/355 AS X-TUBE AFT  
 Job Number : 28465  
 Estimate Number : 12486  
 P.O. Number : N/A Part Number : D350748201  
 This Issue : 9/12/2006 S.O. No. : N/A Drawing Number : IIN-D350-748 PG5  
 Prsht Rev. : NC Project Number : N/A  
 First Issue : N/A Type : LANDING GEAR Drawing Revision : A UNDER REVIEW OK 06-09-13  
 Previous Run : 28464 Material : N/A  
 Due Date : 10/25/2006 Qty: 1 Um: Each  
 Written By :  
 Checked & Approved By : 06-09-12  
 Comment : Est Rev: A New Issue 06-07-05 JLM  
 Est Rev: B Update qty of MS21042L5 06-09-12 KJ

## Additional Product

Job Number:



Seq. #: Machine Or Operation: Description :

1.0 DC DOCUMENT CONTROL



Comment: Photocopy bluefile & type labels per PPPD350-748-201 CHG001

2.0 28465A X-TUBE AS 350/355 HI AFT



Comment: Sub-Component X-TUBE AS 350/355 HI AFT  
 D350-748-241 B 28465A

3.0 PACKAGING 1 PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1  
 Pick Packing Kit

4.0 D35001 350 SADDLE



Comment: Qty.: 4.0000 Each(s)/Unit Total: 4.0000 Each(s)  
 350 SADDLE  
 Batch: 628477 ✓

5.0 D35011 BUSHING



Comment: Qty.: 16.0000 Each(s)/Unit Total: 16.0000 Each(s)  
 BUSHING  
 Batch: 629799 ✓

*Signature*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

Date: Tuesday, 9/12/2006 1:13:09 PM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 350/355 AS X-TUBE AFT

Job Number: 28465

Part Number: D350748201

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

AN46A

Bolt



Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)

Bolt

Batch: M102115 ✓

7.0

AN441A

bolt



Comment: Qty.: 8.0000 Each(s)/Unit Total : 8.0000 Each(s)

bolt

Batch: M101538 ✓

8.0

AN532A

Bolt



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Bolt

Batch: M113338 ✓

9.0

AN960JD416

Washer



Comment: Qty.: 32.0000 Each(s)/Unit Total : 32.0000 Each(s)

Washer

Batch: M102929 ✓

10.0

AN960JD516

Washer



Comment: Qty.: 8.0000 Each(s)/Unit Total : 8.0000 Each(s)

Washer

Batch: M102519 ✓

11.0

MS21042L4

Nut



Comment: Qty.: 24.0000 Each(s)/Unit Total : 24.0000 Each(s)

Nut

Batch: M103914 ✓

12.0

MS21042L5

Nut



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Nut

Batch: M100564 ✓

CP 04/04/11 @

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes ☐ No ☒ DQA: LD Date: 07/04/12  
 QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

Date: Tuesday, 9/12/2006 1:13:09 PM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 350/355 AS X-TUBE AFT

Job Number: 28465

Part Number: D350748201

Job Number:



Seq. #:

Machine Or Operation:

Description :

13.0

QC4

INSPECT 100% KITS FOR COMPLETENESS



Comment: INSPECT 100% KITS FOR COMPLETENESS

14.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D350-748-201

Location:

PPP Rev:

DRAFT

07/4/11

15.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

07/04/12

Job Completion



U 07/04/11

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

3.10 Apply a continuous bead of Sikaflex-241/-291 or Proseal 890 or MIL-S-8802 Class B2 sealant in the following locations as per Figure 6:

- A) Along saddle/crosstube interface.
- B) Between the saddle flanges.
- C) Along saddle/skidtube interface.

#### 4.0 WEIGHT AND BALANCE

The following weight and balance information is for Dart crosstube installations only. This data should be similar to the existing installation. Differences from the parts removed are the responsibility of the installer.

DART CROSSTUBE	FWD/AFT	WEIGHT	STA	MOMENT
D350-748-101	Fwd	35.2 lb (16.0 kg)	106.3 in (2.70 m)	3742 lb-in (43.2 kg-m)
D350-748-201	Aft	34.7 lb (15.7 kg)	162.4 in (4.12 m)	5635 lb-in (64.7 kg-m)

#### 5.0 PARTS LIST

Qty -101	Qty -201	Part Number	Description
X		D350-748-101	CROSSTUBE INSTALLATION, AS 350/355 HIGH FWD
	X	D350-748-201	CROSSTUBE INSTALLATION, AS 350/355 HIGH AFT
1		D350-748-141	CROSSTUBE ASSEMBLY, AS 350/355 HIGH FWD
	1	D350-748-241	CROSSTUBE ASSEMBLY, AS 350/355 HIGH AFT
*2	*2	D3502-1	SUPPORT
*2	*2	D2856-400-710	ABRASION STRIP
*1	*1	AELS-1032-225	INSERT
*2	*2	MS21920-20	CLAMP
*1	*1	MS27039-1-10	SCREW
*1	*1	AN960JD10	WASHER
4	4	D3500-1	SADDLE
16	16	D3501-1	BUSHING
16	16	AN4-6A	BOLT
8	8	AN4-41A	BOLT
4	4	AN5-32A	BOLT
32	32	AN960JD416	WASHER
8	8	AN960JD516	WASHER
24	24	MS21042L4	NUT (OR MS21042-4)
4	4	MS21042L5	NUT (OR MS21042-5)

\* REFERENCE ONLY. PARTS ARE INCLUDED IN D350-748-141/241 ASSEMBLIES ABOVE

SHOP COPY

RETURN TO

ENGINEERING

UNCONTROLLED COPY

SUBJECT TO AMENDMENT

WITHOUT NOTICE

WORK ORDER  
NO. 28465

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Revision: A

Date: 06.05.08

Date: Tuesday, 9/12/2006 1:13:27 PM  
 User: Kim Johnston

## Process Sheet

<b>Customer</b> :	CJ-DAR001 Dart Helicopters Services	<b>Drawing Name</b> :	X-TUBE AS 350/355 HI AFT
<b>Job Number</b> :	28465A		
<b>Estimate Number</b> :	12483		
<b>P.O. Number</b> :	N/A	<b>Part Number</b> :	D350748241
<b>This Issue</b> :	9/12/2006	<b>Drawing Number</b> :	D350-748-241
<b>Prsht Rev.</b> :	NC	<b>Project Number</b> :	N/A
<b>First Issue</b> :	N/A	<b>Drawing Revision</b> :	C UNDER REVIEW
<b>Previous Run</b> :	28464A	<b>Material</b> :	N/A
<b>Written By</b> :		<b>Due Date</b> :	10/25/2006
<b>Checked &amp; Approved By</b> :	06.09.12 06.09.13 WORK TO STEP 15		
<b>Comment</b> :	Est Rev: A New Issue 06-07-05 JLM Est Rev: B Update cadplate process 06-09-12 KJ		

## Additional Product

Job Number:



<b>Seq. #:</b>	<b>Machine Or Operation:</b>	<b>Description :</b>
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1.0	DC	DOCUMENT CONTROL
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**Comment:** DOCUMENT CONTROL

Photocopy bluefile and create labels as per PPP D350-748-241 CHG001

N/A

2.0	D6018125	Crosstube Material
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**Comment:** Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Crosstube Material

D6018-125

2.299" OD X 2.000" ID

Batch: 27472

BG 06.09.14

3.0	MORI SEIKI	MORI SEIKI CNC LATHE LARGE
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**Comment:** MORI SEIKI CNC LATHE LARGE

1-Fill tube with sand &amp; install plugs on both ends as per Folio FA647

2-Turn first side as per Folio FA647

3-Deburr &amp; Inspect for surface damage. Repair damage within limits as per Dwg D350-748-241.

BG 06.09.15 1

4.0	QC1	INSPECT ALL DIM TO DIM SHEET
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**Comment:** INSPECT ALL DIM TO DIM SHEET

BG 06.09.15 1



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 9/12/2006 1:13:27 PM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI AFT

Job Number: 25465A

Part Number: D350748241

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

MORI SEIKI

MORI SEIKI CNC LATHE LARGE



Comment: MORI SEIKI CNC LATHE LARGE

1-Turn second side as per Folio FA647

2-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D350-748-241.

3-Scribe part # as per Dwg D350-748-241

36 06.09.15 1

6.0

QC1

INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

36 06.09.15 1

7.0

QC8

SECOND CHECK



Comment: SECOND CHECK

36 06/09/15 1

8.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

Remove all Machining Marks

m.e. / DP 6-9-25

9.0

OUTSIDE SERVICE

OUTSIDE SERVICES



Comment: Sub-Contracting OUTSIDE SERVICES

Issue P/O: 2129

C. Ladd 09/26/06

Heat Treat to min 180 KSI As per Dwg D350-748-241

Sand Blast tube after Heat Treat

Possible Supplier: Vac Aero

Ensure Certificate of Conformity is attached

10.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Receive & Inspect For Transit Damage

Ensure certificate of conformity is attached

PC 9/10/12

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
06/12/20	16	MAGNETIC PARTICLE INSPECT PER DART OSI 038 42 CADMIUM PLATE PER AMS-QQ-P-416B CLASS I TYPE II REF D350-748-241- Rev D				CP 06/12/20 per OSI 042	06/12/20

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng.	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 9/12/2006 1:13:27 PM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI AFT

Job Number: 26565A

Part Number: D350748241

Job Number:



Seq. #:

Machine Or Operation:

Description :

11.0

QC6

DIMENSIONAL CHECK



Comment: DIMENSIONAL CHECK

*Job 10.19 ①*

12.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Oil inside of tube with LPS-3 .

A/R

LPS-3

Batch:

*11101915*

*DPG-11-14*

13.0

BENDING

BENDING MACHINE



Comment: BENDING MACHINE

Bend tube as per Dwg D350-748-241 using CNC bender program D350A and Folio FT

*DPG-11-13*

14.0

QC6

DIMENSIONAL CHECK



Comment: DIMENSIONAL CHECK

*Job 11.13 ①*

15.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Remove all marks from tube within limits of D350-748-241

*pm 06-11-140*

2-Drill Tube as per Dwg D350-748-241 Using DT8876 Drill Jigs,

Set-up drill table as per QSI 010

*DPG-11-14*

POSITIVE  
RECALL

3-Deburr

4-Engrave Part # and Batch # as per Dwg D350-748-241

16.0

OUTSIDE SERVICE

OUTSIDE SERVICES



Comment: Sub-Contracting OUTSIDE SERVICES

Issue P/O: *2501*

Stress relief at 375° for 5 hours

Magnetic Particle Inspect per ASTM E1444

Cadium Plate per QQ-P-416F, Class 1, Type 2

Embrittle relief at 375° for 8 hours, Chromate Treat

Possibe Supplier: Southwest United Industries

Ensure Certificate of Conformity is attached

*C20611115 ①*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

Date: Tuesday, 9/12/2006 1:13:28 PM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI AFT

Job Number: 28465A

Part Number: D350748241

Job Number:



Seq. #:

Machine Or Operation:

Description :

17.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Receive & Inspect For Transit Damage

Ensure certificate of conformity is attached

*Handwritten:* 4/12/20 (1)

18.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

*Handwritten:* 12-20 (1)

19.0

SPRAY PAINTING

SPRAY PAINTING



Comment: SPRAY PAINTING

1-Prime inside crosstube as per QSI 005 4.2

*Handwritten:* ml 01 02 27

(1)

2-Paint Outside of Tube as per Dart QSI 005 4.2

*Handwritten:* ml 01 02 28

(1)

20.0

QC14

Inspect Spray Paint



Comment: Inspect Spray Paint

Then, Wrap in plastic bag to protect from scratches

*Handwritten:* RT 07-03-02

*Handwritten:* P10

21.0

D35021

SUPPORT



Comment: Qty.: 2.0000 Each(s)/Unit Total: 2.0000 Each(s)

SUPPORT

Batch: 328476

*Handwritten:* RT 07-03-02

22.0

D2856400

Abrasion Strip



Comment: Qty.: 1.2401 f(s)/Unit Total: 1.2401 f(s)

Abrasion Strip 7.10" long x2

Batch: 21285

*Handwritten:* RT 07-03-02

23.0

ALS41032225

Insert



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Insert

Batch: m19393



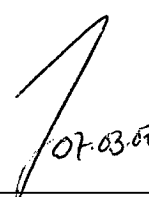


*Handwritten:* RT 07-03-02

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
07-05-07	20-0	Tube has a light spot. Primer is visible in one section.	 051042	It is acceptable to assemble tube, then repaint the one side as per Q51005, for masking purposes.	 07-04-09	 07-03-07	 051042	 07-03-07

**NOTE:** Date & initial all entries

Date: Tuesday, 9/12/2006 1:13:28 PM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI AFT

Job Number: 28465A

Part Number: D350748241

Job Number:



Seq. #:

Machine Or Operation:

Description :

24.0

AN960JD10

Washer



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Washer

Batch: 160274

RT 07-03-02

25.0

MS2192020

Clamp (per MIL-DTL-8783C)



Comment: Qty.: 2.0000 Each(s)/Unit Total: 2.0000 Each(s)

Clamp (per MIL-DTL-8783C)

Batch: 102440

RT 07-03-02

26.0

MS27039110

Screw



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Screw

Batch: 18836

RT 07-03-02

27.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Install Ground wire Insert, then insert screw and washer

2-Install Abrasion strips as per Dwg D350-748-241 & QSI 035.

3-Install supports Using Dt8876 as per Dwg D350-748-241, Torque to 60-80 IN-LBS

RT 07-03-02

28.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

DP 2-4-11

29.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D350-748-241

Location:

PPP Rev:

PPP B28465 6/7/4/11(1)



Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes ☒ No ☐ DQA: ☒ Date: 07/14/12  
 QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 9/12/2006 1:13:28 PM  
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## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI AFT

Job Number: 28465A

Part Number: D350748241

Job Number:



Seq. #:

Machine Or Operation:

Description :

30.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

①  
D07104/12  
U0704.11

Job Completion



POSITIVE RECALL

EFFECTIVE 06.09.13 AUTH UP

RELEASED UP DATE 06.12.20

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



DESIGN <i>qp</i>	DRAWN BY <i>qp</i>	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>#</i>	APPROVED <i>#</i>	DRAWING NO. D350-748-241	REV. C SHEET 1 OF 3
DATE 06.08.14		TITLE CROSSTUBE (AS 350/355 HI AFT) NTS	
A	06.03.31	NEW ISSUE	
B	06.06.30	ADD D6018-125 & PRIME AND PAINT	
C	06.08.14	ADD CAD PLATING	

**UNDER REVIEW**

*qp* 06.08.14

CAD PLATING REQUIRED  
AND CHANGE

QTY	P/N	DESCRIPTION
X	D350-748-241	CROSSTUBE ASSEMBLY (AS 350/355 HI AFT)
1	D6018-125	CROSSTUBE (OR D6015-125)
2	D3502-1	SUPPORT
2	D2856-400-710	ABRASION STRIP
1	AELS-1032-225	INSERT
1	AN960JD10	WASHER
2	MS21920-20	CLAMP (PER DART SPEC. M-MS21920-20)
1	MS27039-1-10	SCREW

**D350-748-141 CROSSTUBE:**

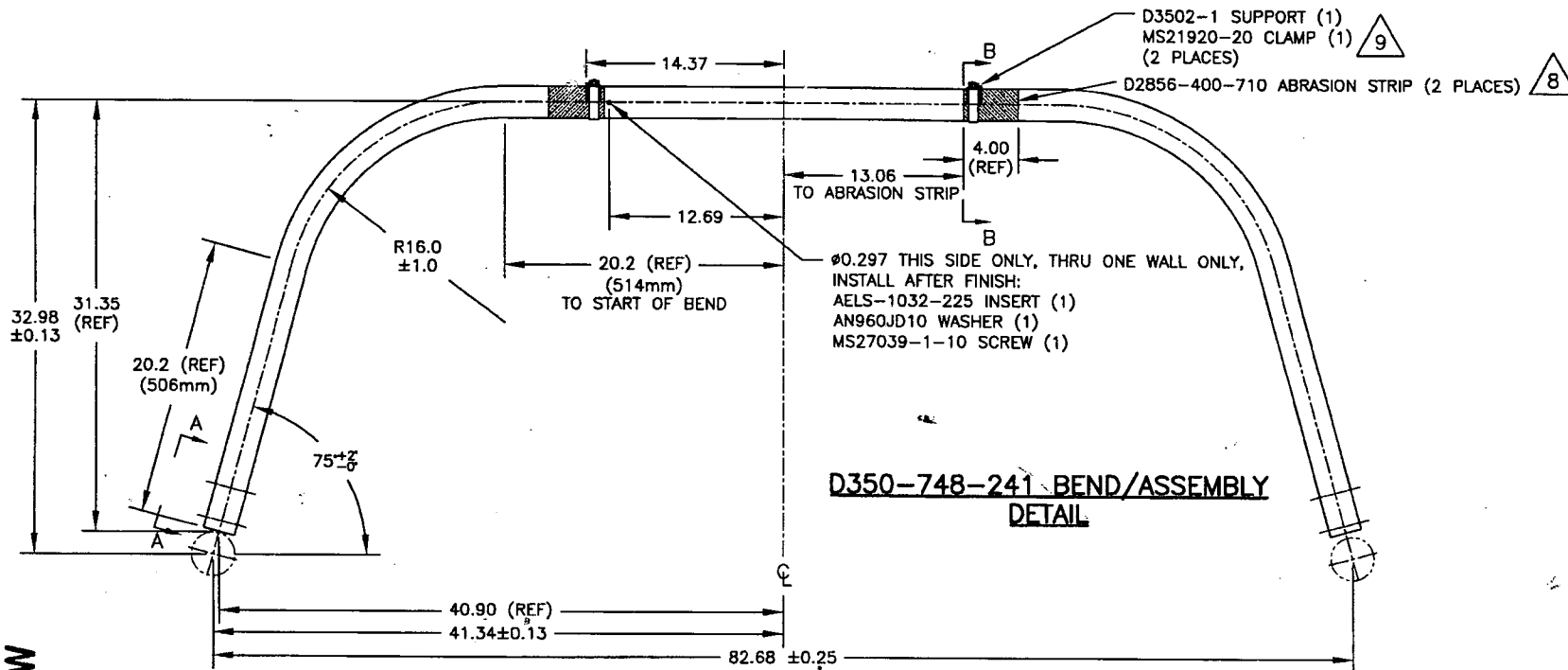
- 1) MATERIAL: MANUFACTURED FROM D6018-125 OR D6015-125  
FINISHED LENGTH = 122.70±0.06
- 2) MACHINE PER MACHINING DETAIL ON PAGE 3. BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITIONS SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- 3) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 4) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 5) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING
- 6) FINISH: CADMIUM PLATE PER QQ-P-416F, CLASS 1, TYPE II  
MAGNETIC PARTICLE INSPECT PER ASTM E1444 AFTER CADMIUM PLATING  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 7) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.
- 8) INSTALL D2856-400-710 ABRASION STRIP WITH A GAP ON BOTTOM SIDE OF CROSSTUBE CENTERED OPPOSITE D3502-1 SUPPORT, PER QSI 035.
- 9) TORQUE MS21920-20 CLAMPS 60 TO 80 IN-LB
- 10) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 11) ALL DIMENSIONS ARE IN INCHES
- 12) PART IS SYMMETRIC ABOUT CENTERLINE EXCEPT FOR Ø0.297 HOLE.

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ENGINEERING  
UNCONTROLLED COPY  
NO. 28465A  
RELEASED

06.08.15 *#*

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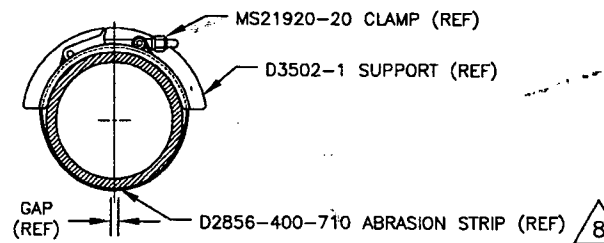
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**D350-748-241 BEND/ASSEMBLY  
DETAIL**

**SECTION B-B**

SCALE 1:2

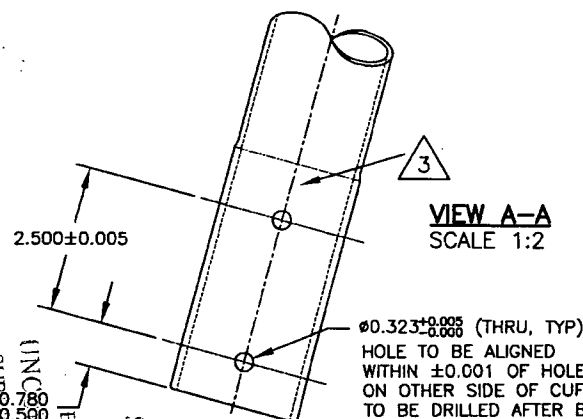


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06-08-15

**VIEW A-A**

SCALE 1:2



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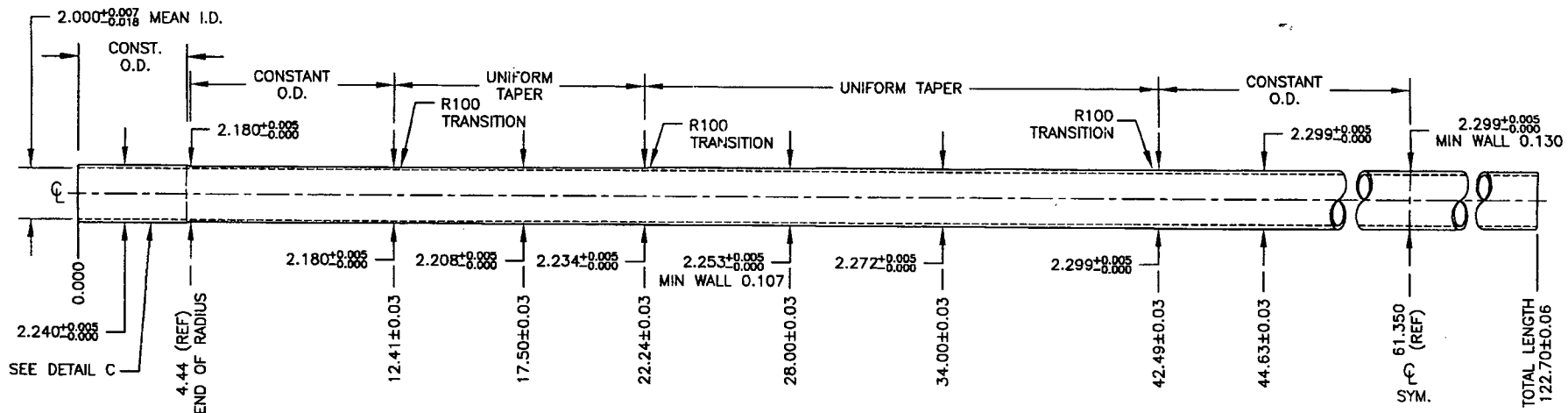
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DESIGN	q	DRAWN BY	q	<b>DART</b>	DART AEROSPACE LTD. WINDSOR, ONTARIO, CANADA
CHECKED	#	APPROVED	#	DRAWING NO.	D350-748-241
DATE	06.08.14	TITLE	CROSSTUBE (AS 350/355 HI AFT)	REV. C	SHEET 2 OF 3
		SCALE	1:8		

**UNDER REVIEW**

Lot 100 100

NO. 28465A  
WORK ORDER  
WITHOUT NOTICE  
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UNDER REVIEW

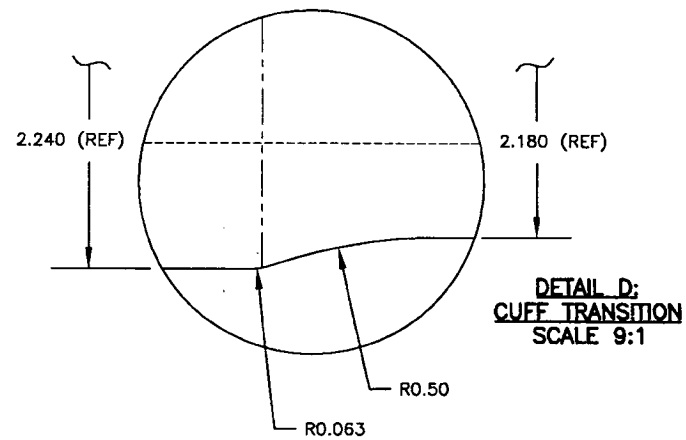
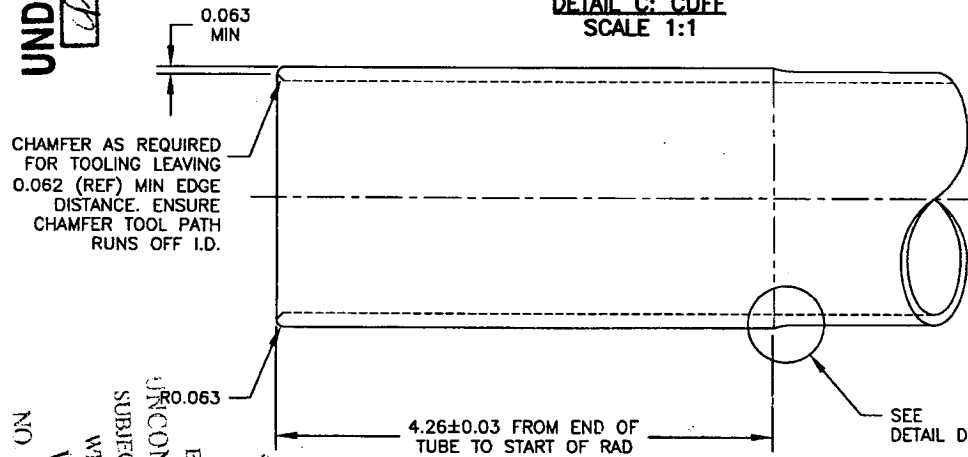
06.08.15

RELEASED

06.08.15

D350-748-241 MACHINING DETAIL

DETAIL C: CUFF  
SCALE 1:1



DETAIL D:  
CUFF TRANSITION  
SCALE 9:1

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DATE 06.08.14		TITLE CROSSTUBE (AS 350/355 HI. AFT)		SCALE 1:4	

NO 28465A  
WORK ORDER  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
ENGINEERING  
RETURN TO  
SHOP COPY

<b>DART AEROSPACE LTD</b>		<b>Work Order:</b> 28465A
<b>Description:</b> 350 X-TUBE		<b>Part Number:</b> 0350-748-241
<b>Inspection Dwg:</b> 350-748-241 Rev: C		<b>Page 1 of 1</b>

### FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article      ☒ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
2.240	+0.005 -0.000	2.241	✓			
2.180	"	2.182	✓			
2.180	"	2.183	✓			
2.208	"	2.211	✓			
2.234	"	2.237	✓			
2.253	"	2.254	✓			
2.272	"	2.274	✓			
2.299	"	2.302	✓			
4.26	±0.30	4.26	✓			
.063	±0.010	.063	✓			
122.7	±0.06	122.7	✓			
2.240	+0.005 -0.000	2.244	✓			
2.180	"	2.185	✓			
2.180	"	2.185	✓			
2.208	"	2.212	✓			
2.234	"	2.238	✓			
2.253	"	2.255	✓			
2.272	"	2.276	✓			
2.299	"	2.303	✓			
4.26	±0.3	4.28	✓			
.063	±0.010	.063	✓			

<b>Measured by:</b> <i>Bl</i>	<b>Audited by:</b> <i>J.G</i>	<b>Prototype Approval:</b>
<b>Date:</b> 06-09-15	<b>Date:</b> 06/09/19	<b>Date:</b>

Rev	Date	Change	Revised by	Approved
A		New Issue	KJ/JLM	



# VAC AERO

INTERNATIONAL INC.

## RELEASE NOTE

GST No.: R105468102

OAK 79915-1



HEAD OFFICE  
1371 SPEERS ROAD, OAKVILLE, ONTARIO  
CANADA L6L 2X5  
TEL: (905) 827-4171 FAX: (905) 827-7489



2009 WYECROFT ROAD, UNIT B  
OAKVILLE, ONTARIO  
CANADA L6L 6J4  
TEL: (905) 827-7377 FAX: (905) 827-1380



QUEBEC DIVISION  
7450 RUE VÉRITÉ STREET, ST. LAURENT, QUÉBEC  
CANADA H4S 1C5  
TEL: (514) 334-4240 FAX: (514) 334-6269

10/11/2006

MM / DD / YYYY

PAGE: 1

BILL TO: 1DAR01  
DART AEROSPACE LTD.  
1270 ABERDEEN ST.  
HAWKESBURY, ON

SHIP TO: DART AEROSPACE LTD.  
1270 ABERDEEN ST.  
HAWKESBURY, ON

K6A 1K7

K6A 1K7

DATE SHIPPED	SHIP VIA	F.O.B.
10/11/2006		ORIGIN
CUSTOMER P/O No.	JOB No.	TERMS
PO00002129 ✓		COD

PART No.	DESCRIPTION	UOM	QTY ORD	QTY SHPD	TEST RESULTS
D350-CROSS TUBES		EA	10	10	
<p>Process Specifications: Procedure: 4353 HEAT TREATED TO 180-200 KSI PER AMS 2759-1C ✓ 100% HARDNESS TESTED PER ASTM E-18 HRC 40-43 MATERIAL: 4130 ✓</p> <p>5 PCS. P/N: D350748141 B28459, B28460, B28458, B28466, B28461 5 PCS. P/N: D350748241 B28162, B28464, B28465, B28463, B28471</p> <p>SANDBLASTED AFTER HEAT TREAT ✓</p> <p><i>[Signature]</i></p>					
<div><b>100% HARDNESS TESTED</b> 10 PCS. 42/43 HRC</div> <div>✓ V.A.I.O. TH. 25 Q.C.</div>					

I hereby certify that the material covered by this release note has been inspected and tested and conforms to all specifications relevant thereto in accordance with the conditions of the contract / or purchase order.

ON BEHALF OF VAC AERO INTERNATIONAL INC.

*[Signature]*  
Authorized Q.C. Inspector



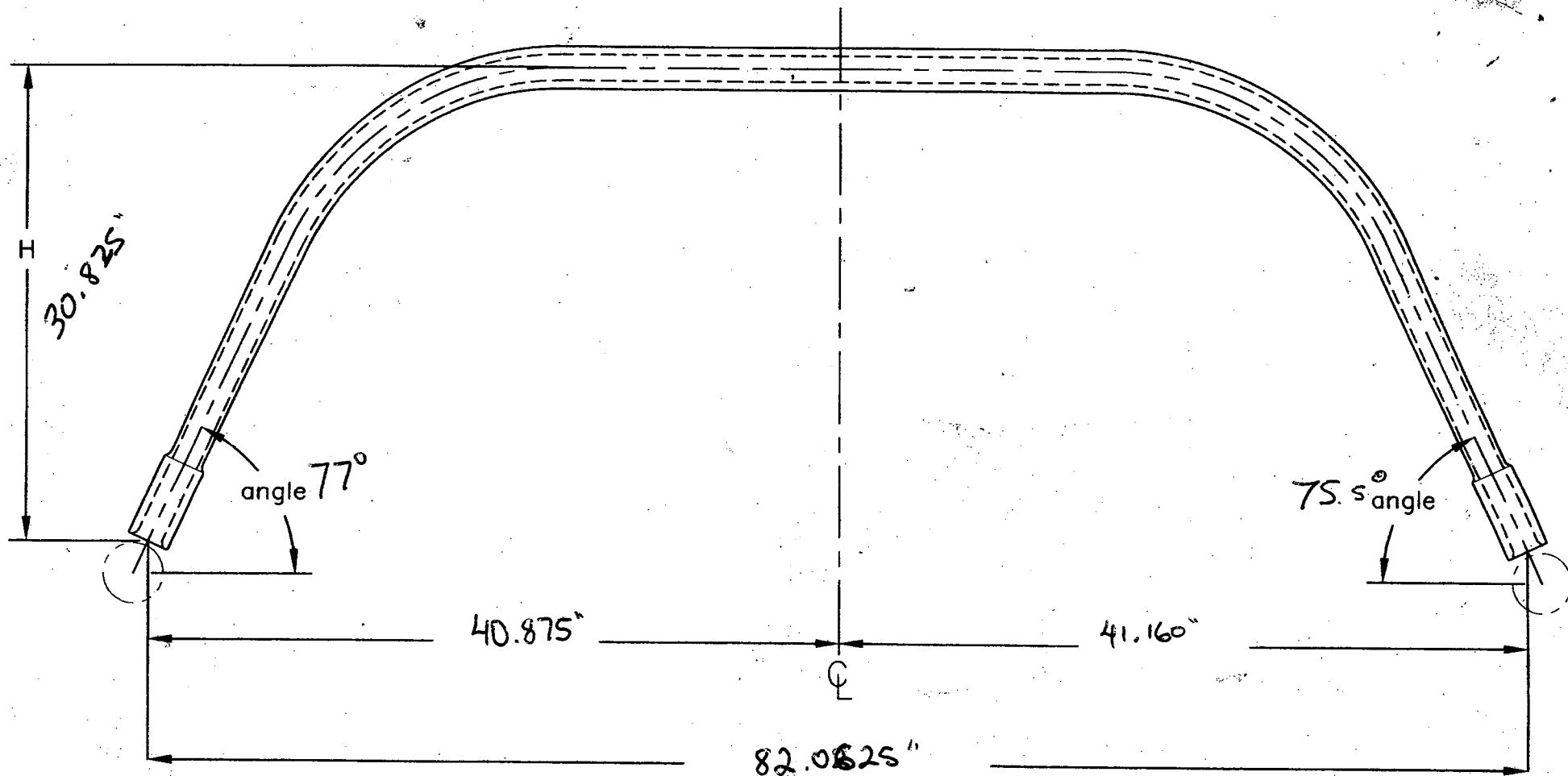
HEAT  
TREATING



VACUUM BRAZING · HEAT TREATING · SPECIAL PROCESSING · FURNACE EQUIPMENT







DATE: 06/11/06

DESCRIPTION: A350 748241

BATCH NO: B28465A

DRAWING: A350 748241 Rev C under rev

H: 31.35"

1/2 SPAN: 40.90"

TOTAL SPAN: 81.8"

ANGLE: 75°

*Signature*  
06/11/06





# Southwest United Industries, Inc.

SOUTHWEST UNITED INDUSTRIES, INC.  
422 S. St. Louis Tulsa, OK 74120

Page 1 of 1

## PACKING LIST

DART AEROSPACE LTD  
1270 ABERDEEN STREET  
HAWKESBURY, ON K6A 1K7

Ship Date: 12/18/2006

QTY		Part Number/Description	
Certification #: 14450		Certification Date: 12/18/2006	
1.00	D350-748-141	Ref-No: B28458A	
	CROSSTUBE	Job-No: 32000	
		P/O #: 274731	
1.00	D350-748-141	Ref-No: B28460A	
	CROSSTUBE	Job-No: 32014	
		P/O #: 274731	
1.00	D350-748-141	Ref-No: B28466A	
	CROSSTUBE	Job-No: 32015	
		P/O #: 274731	
1.00	D350-748-241	Ref-No: B28462A	
	CROSSTUBE	Job-No: 32016	
		P/O #: 274731	
1.00	D350-748-241	Ref-No: B28463A	
	CROSSTUBE	Job-No: 32017	
		P/O #: 274731	
1.00	D350-748-241	Ref-No: B28465A	
	CROSSTUBE	Job-No: 32018	
		P/O #: 274731	
JOB QTY FOR 14450:		6	SHIPPED QTY FOR 14450: 6

Tracking #: k  
Ship Via: OTHERS

COD Amount: \$ 1,980.00

FAA Repair Station CN2R748K

Subject to Southwest United Industries, Inc. Standard Terms and Conditions available for review at [www.swunited.com](http://www.swunited.com)



## Southwest United Industries, Inc.

SOUTHWEST UNITED INDUSTRIES, INC.  
422 S. St. Louis Tulsa, OK 74120

Page 1 of 2

### CERTIFICATION

DART AEROSPACE LTD  
1270 ABERDEEN STREET  
HAWKESBURY, ON K6A 1K7  
CANADA

Certification #: 14450

Certification Date: 12/18/2006

Qty	Part Number/Description	Job-No/Order-No/Ctl-No
1	D350-748-141 CROSSTUBE	32000 274731 B28458A
1	D350-748-141 CROSSTUBE	32014 274731 B28460A
1	D350-748-141 CROSSTUBE	32015 274731 B28466A
1	D350-748-141 CROSSTUBE	32016 274731 B28462A
1	D350-748-141 CROSSTUBE	32017 274731 B28463A
1	D350-748-141 CROSSTUBE	32018 274731 B28465A

1. Stress relieve at 350-400F for 4 hours minimum

2. Cadmium plate per AMS-QQ-P-416B, Type II, Class 1 (QQ-P-416, Type II, Class 1)

3. Embrittlement relieve within 4 hours of plating at 350-400F for 8 hours minimum

4. Magnetic particle inspect per ASTM E 1444-05. No linear indications/cracks allowed.

Qty Ins: 6    Qty Rej: 0    Qty Acc: 6

5. Inspect

FAA Repair Station CN2R748K

Subject to Southwest United Industries, Inc. Standard Terms and Conditions available for review at [www.swunited.com](http://www.swunited.com)



## Southwest United Industries, Inc.

SOUTHWEST UNITED INDUSTRIES, INC.  
422 S. St. Louis Tulsa, OK 74120

Page 2 of 2

### CERTIFICATION

We certify that the parts listed above have been processed in accordance with the requirements and specifications of the above referenced purchase order. Documentation is on file and available for review.

Certification By: 

WISE, ROBERT



FAA Repair Station CN2R748K

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